



# FISH DISTRIBUTION

## SPATIAL DATA STANDARD



Chinook Salmon at Rainie Falls, Rogue River

## DOCUMENT REVISIONS

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# 1. GENERAL INFORMATION

Dataset (Theme) Name: Fish Distribution

Dataset (Feature Class): FISH\_ANADROMOUS\_ARC, FISH\_RESIDENT\_ARC, FISH\_NON\_NATIVE\_ARC, FISH\_ANADROMOUS\_POLY, FISH\_RESIDENT\_POLY, FISH\_NON\_NATIVE\_POLY

## 1.1 ROLES AND RESPONSIBILITIES

Roles	Responsibilities
State Data Steward	The <a href="#">State Data Steward</a> is responsible for approving data standards and business rules, approving Quality Assurance/Quality Control procedures, identifying potential privacy issues, and ensuring that data is managed as a corporate resource. The state data steward coordinates with field office data stewards, the state data administrator, Geographic Information System (GIS) coordinators, and national data stewards. The state data steward also reviews geospatial metadata for completeness and quality.
GIS Technical Lead	The <a href="#">GIS Technical Lead</a> works with data stewards to convert business needs into GIS applications and derive data requirements, and participates in the development of data standards. The GIS technical lead coordinates with system administrators and GIS coordinators to manage the GIS databases. The GIS technical lead works with data editors to make sure data is being input into the enterprise Spatial Database Engine (SDE) database consistently and in accordance with the established data standard. The GIS technical lead provides technical assistance and advice on GIS analysis, query and display of the dataset.
State Data Administrator	The <a href="#">State Data Administrator</a> provides information management leadership, data modeling expertise, and custodianship of the state data models. The state data administrator ensures that defined processes for development of data standards and metadata are followed, and that they are consistent and complete. The state data administrator is responsible for making data standards and metadata accessible to all users. The state data administrator also coordinates with data stewards and GIS coordinators to respond to national spatial data requests.
State Records Administrator	The <a href="#">State Records Administrator</a> , assists the state data steward to identify any privacy issues related to spatial data. The state records administrator also provides direction and guidance on data release and fees. The state records administrator ensures that data has been classified under the proper records retention schedule and determines appropriate Freedom of Information Act category.

**Table 1. Role and Responsibilities**

Current personnel assigned these Roles, can be found at the following link:

<https://www.blm.gov/about/data/oregon-data-management>

## 1.2 FOIA CATEGORY

Public

## 1.3 RECORDS RETENTION SCHEDULE

The DRS/GRS/BLM Combined Records Schedule under Schedule 20/52a3 (Electronic Records/Geographic Information Systems) lists this theme as one of the system-centric themes that are significant for the Bureau of Land Management's (BLM) mission that must be permanently retained.

“PERMANENT. Cutoff at the end of each Fiscal Year (FY), or when significant changes and additions have been made, before and after the change. Use BLM 20/52a. Transfer to the National Archives every three years after cutoff. Under the instruction in 36 CFR 1235.44-50 or whichever guidance is in place at the time of the transfer. Submissions are full datasets and are in addition to, not replacements, of earlier submissions.”

Oregon/Washington (OR/WA) BLM Guidebook for Management of Geospatial Data (v1) Section 15.2 - Corporate Data Online Archives prescribes:

“Vector annual archives are retained online for 12 years. Each year, data that has reached 12 years old is copied off-line, to be retained until no longer needed (determined by data stewards and program leads), with format and readability maintained in a five (5) year tech refresh update cycle.”

## 1.4 SECURITY/ACCESS/SENSITIVITY

The Fish Distribution set of themes do not require any additional security other than that provided by the General Support System (the hardware/software infrastructure of the OR/WA BLM).

This dataset is not sensitive and there are no restrictions on access to this data either from within the or external to the BLM. This dataset falls under the standard Records Access Category 1A-Public Data.

There are or no privacy issues or concerns associated with these data themes.

## 1.5 KEYWORDS

Keywords that can be used to locate this dataset include:

- BLM Thesaurus: Wildlife, Hydrology
- International Organization for Standardization (ISO) Thesaurus: biota, environment, inlandWaters
- Additional keywords include: Fish, fisheries, anadromous, resident, non-native, invasive, aquatic, riparian, wetlands, lotic, lentic, streams, rivers, creeks, reservoirs, lakes, periodicity, continuity, stream order, streamflow, planflow, headwaters, inception.

## 1.6 SUBJECT FUNCTION CODES

BLM Subject Function codes that can be used to describe this dataset include:

- 1283 – Data Administration
- 6720 – Aquatic Resource Management
- 6762 – Stream Management
- 9167 – Geography and Mapping

## 2. DATASET OVERVIEW

### 2.1 DESCRIPTION

The Fish Distribution dataset represents spatial location and basic information about the presence of fish by species. This dataset includes:

- Resident Fish – fish that do not migrate out to the ocean but remain in freshwater.
- Anadromous Fish – fish that migrate up rivers from the sea to breed in freshwater.
- Non-Native Fish – fish that are not native to the system.

Most of the historical data comes primarily from the Hydro Update Project and is information on actual or modeled fish presence. While each district determined fish presence in various ways, generally verification means that the fish biologist or other trained specialist was able to see fish at the stream. There is also additional data from actual observations. In 2017, BLM staff coordinated with partner agencies to integrate Fish Distribution data to improve data quality. Much of the data in the Resident and Anadromous layers was updated as part of this process.

The data is spatially referenced to the National Hydrography Dataset (NHD) and follows the NHD data format for linear and area events.

### 2.2 USAGE

Fish Distribution data informs resource management planning, project level National Environmental Policy Act (NEPA) analysis, Endangered Species Act (ESA) Section 7 consultation analysis, and restoration planning. Riparian Reserve land use allocations are designated on federal lands by Resource Management Plans (RMP) and vary in width, depending on fish distribution as well as stream periodicity. ESA Recovery Actions and habitat restoration activities rely on Fish Distribution data that extends across land ownerships.

### 2.3 SPONSOR/AFFECTED PARTIES

The sponsor for this data set is the Deputy State Director for the Division of Resources, Lands, Mineral and Fire.

### 2.4 RELATIONSHIP TO OTHER DATASETS, DATABASES or FILES

The Fish Distribution data can be located on BLM and private land. BLM incorporates other agency data, such as fish distribution information from the Oregon Department of Fish and Wildlife (ODFW). The goal is to match BLM, ODFW and other agency data across the landscape. Our non-governmental partners and the general public are affected to the extent that Fish Distribution data affects land use allocation on federal lands that determine BLM management of those lands. Fish distribution determines several aspects of RMP implementation because of potential impacts to the fisheries resources.

Features in the Fish Distribution feature classes inherit their geometry and some attributes from the NHD, which is maintained and sponsored by the Department of the Interior (DOI), United States Geological Survey.

The Fish Distribution dataset is also used to derive the fishbearing attribute on streams, reservoirs and lakes. The presence of fish has an impact on the riparian buffers which, in turn, impact allowable projects and actions within the buffers. Especially in Western Oregon, non-perennial streams with fish impacts the allowable timber cut, the size of culverts under roads and other projects on public lands.

## 2.5 DATA CATEGORY/ARCHITECTURE LINK

These data themes are a portion of the Oregon Data Framework (ODF). The ODF utilizes the concept of inheritance to define specific instances of data. All OR/WA resource-related data are divided into three general categories:

- Activities
- Resources
- Boundaries

These general categories are broken into subcategories that inherit spatial characteristics and attributes from their parent category. These subcategories may be further broken into more specific groups until the basic data set that cannot be further subdivided. Those basic data sets inherit all characteristics of all groups/categories above them. The basic data sets are where physical data gets populated (those groups/categories above them do not contain actual data, but set parameters that all data of that type must follow). See the ODF Overview (Figure 2) for a simplified schematic of the entire ODF showing the overall organization and entity inheritance. The Water Quality entities are highlighted. For additional information about the ODF, contact the [State Data Administrator](#). The State Data Administrator's contact information can be found at the following link:

<https://www.blm.gov/about/data/oregon-data-management>

In the ODF, Fish Distribution is considered a natural resource and categorized as follows:

ODF

Resources

Species Occurrences

FISH\_ANADROMOUS\_ARC

FISH\_RESIDENT\_ARC

FISH\_NON\_NATIVE\_ARC

FISH\_ANADROMOUS\_POLY

FISH\_RESIDENT\_POLY

FISH\_NON\_NATIVE\_POLY



Figure 1 provides a graphic representation of the entities and hierarchical relationships.

## **2.6 RELATIONSHIP TO THE DEPARTMENT OF THE INTERIOR ENTERPRISE ARCHITECTURE – DATA RESOURCE MODEL**

The DOI Enterprise Architecture contains a component called the Data Resource Model. This model addresses the concepts of data sharing, data description, and data context. This data standard provides information needed to address each of those areas. Data sharing is addressed through complete documentation and simple data structures which make sharing easier. Data description is addressed through the section on Attribute Descriptions. Data context is addressed through the data organization and structure portions of this document. In addition, the DOI Data Resource Model categorizes data by use of standardized Data Subject Areas and Information Classes. For this data set, the Data Subject Area and Information Class are:

- Data Subject Area: Geospatial
- Information Class: Location

## 2.7 FISH DISTRIBUTION DATA ORGANIZATION/STRUCTURE

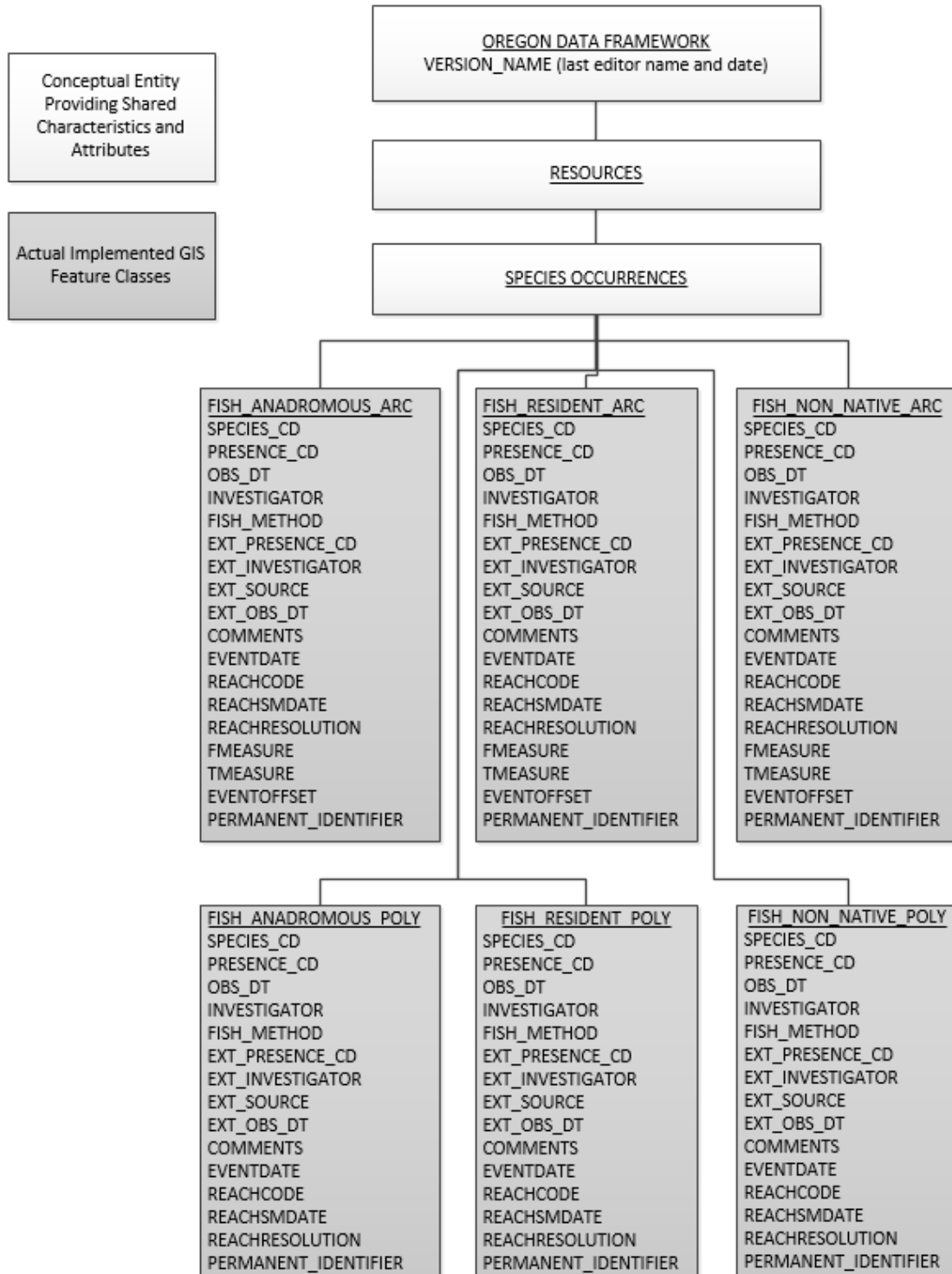


Figure 1. Data Organization Structure

### **3. DATA MANAGEMENT PROTOCOLS**

#### **3.1 ACCURACY REQUIREMENTS**

This dataset inherits its geometry and accuracy from the NHD dataset. Accuracy is, however, variable because of a wide variety of sources. Over time, the accuracy will continue to improve as improvements are made to the accuracy of the NHD.

#### **3.2 COLLECTION, INPUT, AND MAINTENANCE PROTOCOLS**

Fish Distribution data will be created, as needed, by natural resource and GIS staff using GIS software. Trained editors will use the BLM SDE Version Management tools to automatically load the correct editable layers to the user's map document and perform a wide range of valuable background processes to improve data integrity. The version check-in process leverages the Data Reviewer extension for ArcGIS. In addition, editors are required to edit the distribution spatial features using the Hydrography Event Management (HEM) tools. These tools ensure that the Fish Distribution features remain coincident with the NHD and that route identifier, start measure and end measure attributes are correctly maintained. Maintenance of the datasets using the HEM tools is critical to ensure the Fishbearing and Hydro Publication datasets can be derived from this dataset.

Note regarding Coastal Cutthroat Trout: while this species can be both an Anadromous and Resident fish, a decision was made to only record data in the Resident feature classes.

#### **3.3 UPDATE FREQUENCY AND ARCHIVAL PROTOCOLS**

Data is updated as needed, but at least annually. Data will be captured once a year during the corporate database annual archive, which occurs at the end of the calendar year.

#### **3.4 STATEWIDE MONITORING**

Each year, the Resource Science Data team of the BLM Division of Resources, Lands, Minerals and Fire meets with each state data steward for every corporate geospatial theme to conduct an annual review of the data. During the annual review, geospatial staff present the state data stewards with a report detailing Quality Assurance/Quality Control (QAQC) results performed on the data. The QAQC does the following:

- Checks that all attribute values conform to the range or coded-value domains to which they are applied
- Checks that all attributes marked as required in the data standard have values
- Checks for multipart polygons if they are forbidden by the data standard
- Checks for duplicate features which have the same geometry and attributes
- Checks for overlapping features if forbidden by the data standard
- Checks for invalid geometry (such as self-intersections)
- Checks for slivers
- Other checks as necessary (can be customized according to the data standard)

In addition to this report, geospatial staff conduct a qualitative needs assessment with the steward to identify any unmet needs or problems with the current status of the data. At the conclusion of the review, the team records the steward's approvals of the datasets reviewed. These approvals are then added to the corporate metadata.

#### 4. FISH DISTRIBUTION SCHEMA (simplified)

Attributes are listed in the order in which they appear in the geodatabase feature class. The order is indicative of the importance of the attribute for theme definition and use. There are no aliases unless specifically noted. The domains used in this data standard can be found in the Appendix. These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Current domains are found on the internal OR/WA SharePoint data management page. Some of the domains used in this data standard are also available at the following web site: <https://www.blm.gov/about/data/oregon-data-management>

For additional information about the ODF, contact the [State Data Administrator](#). The State Data Administrator's contact information can be found at the following link:

<https://www.blm.gov/about/data/oregon-data-management>

##### 4.1 FISH\_ANADROMOUS\_ARC (Fish Anadromous Distribution Lines)

Attribute Name	Data Type	Length	Default	Required?	Domain
SPECIES_CD	String	10		Yes	<a href="#">dom Fish Anadromous</a>
PRESENCE_CD	String	3		Yes	<a href="#">dom Fish Presence</a>
OBS_DT	Date			Yes	
INVESTIGATOR	String	30		Yes	
FISH_METHOD	String	30		Yes	<a href="#">dom Fish Method</a>
EXT_PRESENCE_CD	String	50		No	<a href="#">dom Fish ExtPresence</a>
EXT_INVESTIGATOR	String	30		No	
EXT_SOURCE	String	50		No	
EXT_OBS_DT	Date			No	
COMMENTS	String	1000		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
EVENTDATE	Date			Yes**	
REACHCODE	String	14		Yes**	<a href="#">dom NHD Resolution</a>
REACHSMDATE	Date			Yes**	
REACHRESOLUTION	Long			Yes**	
FMEASURE	Double			Yes**	
TMEASURE	Double			Yes**	
EVENTOFFSET	Double		0	Yes**	
PERMANENT_IDENTIFIER	String	40		Yes**	

\*Values automatically generated

\*\*Values automatically generated by the HEM Tools

**4.2 FISH\_RESIDENT\_ARC (Fish Resident Distribution Lines)**

Attribute Name	Data Type	Length	Default	Required?	Domain
SPECIES_CD	String	10		Yes	<a href="#">dom Fish Resident</a>
PRESENCE_CD	String	3		Yes	<a href="#">dom Fish Presence</a>
OBS_DT	Date			Yes	
INVESTIGATOR	String	30		Yes	
FISH_METHOD	String	30		Yes	<a href="#">dom Fish Method</a>
EXT_PRESENCE_CD	String	50		No	<a href="#">dom Fish ExtPresence</a>
EXT_INVESTIGATOR	String	30		No	
EXT_SOURCE	String	50		No	
EXT_OBS_DT	Date			No	
COMMENTS	String	1000		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
EVENTDATE	Date			Yes**	
REACHCODE	String	14		Yes**	<a href="#">dom NHD Resolution</a>
REACHSMDATE	Date			Yes**	
REACHRESOLUTION	Long			Yes**	
FMEASURE	Double			Yes**	
TMEASURE	Double			Yes**	
EVENTOFFSET	Double		0	Yes**	
PERMANENT_IDENTIFIER	String	40		Yes**	

\*Values automatically generated

\*\*Values automatically generated by the HEM Tools

**4.3 FISH\_NON\_NATIVE\_ARC (Fish Non-Native Distribution Lines)**

Attribute Name	Data Type	Length	Default	Required?	Domain
SPECIES_CD	String	10		Yes	<a href="#">dom Fish NonNative</a>
PRESENCE_CD	String	3		Yes	<a href="#">dom Fish Presence</a>
OBS_DT	Date			Yes	
INVESTIGATOR	String	30		Yes	
FISH_METHOD	String	30		Yes	<a href="#">dom Fish Method</a>
EXT_PRESENCE_CD	String	50		No	<a href="#">dom Fish ExtPresence</a>
EXT_INVESTIGATOR	String	30		No	
EXT_SOURCE	String	50		No	
EXT_OBS_DT	Date			No	
COMMENTS	String	1000		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
EVENTDATE	Date			Yes**	
REACHCODE	String	14		Yes**	<a href="#">dom NHD Resolution</a>
REACHSMDATE	Date			Yes**	
REACHRESOLUTION	Long			Yes**	
FMEASURE	Double			Yes**	
TMEASURE	Double			Yes**	

EVENTOFFSET	Double		0	Yes**	
PERMANENT_IDENTIFIER	String	40		Yes**	

\*Values automatically generated

\*\*Values automatically generated by the HEM Tools

#### 4.4 FISH\_ANADROMOUS\_POLY (Fish Anadromous Distribution Polygons)

Attribute Name	Data Type	Length	Default	Required?	Domain
SPECIES_CD	String	10		Yes	<a href="#">dom Fish Anadromous</a>
PRESENCE_CD	String	3		Yes	<a href="#">dom Fish Presence</a>
OBS_DT	Date			Yes	
INVESTIGATOR	String	30		Yes	
FISH_METHOD	String	30		Yes	<a href="#">dom Fish Method</a>
EXT_PRESENCE_CD	String	50		No	<a href="#">dom Fish ExtPresence</a>
EXT_INVESTIGATOR	String	30		No	
EXT_SOURCE	String	50		No	
EXT_OBS_DT	Date			No	
COMMENTS	String	1000		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
EVENTDATE	Date			Yes**	
REACHCODE	String	14		Yes**	<a href="#">dom NHD Resolution</a>
REACHSMDATE	Date			Yes**	
REACHRESOLUTION	Long			Yes**	
PERMANENT_IDENTIFIER	String	40		Yes**	

\*Values automatically generated

\*\*Values automatically generated by the HEM Tools

#### 4.5 FISH\_RESIDENT\_POLY (Fish Resident Distribution Polygons)

Attribute Name	Data Type	Length	Default	Required?	Domain
SPECIES_CD	String	10		Yes	<a href="#">dom Fish Resident</a>
PRESENCE_CD	String	3		Yes	<a href="#">dom Fish Presence</a>
OBS_DT	Date			Yes	
INVESTIGATOR	String	30		Yes	
FISH_METHOD	String	30		Yes	<a href="#">dom Fish Method</a>
EXT_PRESENCE_CD	String	50		No	<a href="#">dom Fish ExtPresence</a>
EXT_INVESTIGATOR	String	30		No	
EXT_SOURCE	String	50		No	
EXT_OBS_DT	Date			No	
COMMENTS	String	1000		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
EVENTDATE	Date			Yes**	
REACHCODE	String	14		Yes**	<a href="#">dom NHD Resolution</a>
REACHSMDATE	Date			Yes**	
REACHRESOLUTION	Long			Yes**	

PERMANENT_IDENTIFIER	String	40		Yes**	
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\*Values automatically generated

\*\*Values automatically generated by the HEM Tools

#### 4.6 FISH\_NON\_NATIVE\_POLY (Fish Non-Native Distribution Polygons)

Attribute Name	Data Type	Length	Default	Required?	Domain
SPECIES_CD	String	10		Yes	<a href="#">dom Fish NonNative</a>
PRESENCE_CD	String	3		Yes	<a href="#">dom Fish Presence</a>
OBS_DT	Date			Yes	
INVESTIGATOR	String	30		Yes	
FISH_METHOD	String	30		Yes	<a href="#">dom Fish Method</a>
EXT_PRESENCE_CD	String	50		No	<a href="#">dom Fish ExtPresence</a>
EXT_INVESTIGATOR	String	30		No	
EXT_SOURCE	String	50		No	
EXT_OBS_DT	Date			No	
COMMENTS	String	1000		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
EVENTDATE	Date			Yes**	
REACHCODE	String	14		Yes**	<a href="#">dom NHD Resolution</a>
REACHSMDATE	Date			Yes**	
REACHRESOLUTION	Long			Yes**	
PERMANENT_IDENTIFIER	String	40		Yes**	

\*Values automatically generated

\*\*Values automatically generated by the HEM Tools

### 5. PROJECTION AND SPATIAL EXTENT

All feature classes and feature datasets are in Geographic, North American Datum 83. Units are decimal degrees. Spatial extent (area of coverage) includes all lands managed by the OR/WA BLM, bordered on the North by Latitude 49.5, on the South by Latitude 41.5, on the East by Longitude -116 and on the West by Longitude -125.

### 6. SPATIAL ENTITY CHARACTERISTICS

#### FISH\_ANADROMOUS\_ARC

Description: Instance of Species Occurrences with the Resources group.

Geometry: Lines.

Topology: No topology enforced. Overlapping features are allowed.

Integration Requirements: Line segments must be coincident with the NHD Flowline dataset.

Coincidence may be maintained using the HEM Tools.

#### FISH\_RESIDENT\_ARC

Description: Instance of Species Occurrences with the Resources group.

Geometry: Lines.

Topology: No topology enforced. Overlapping features are allowed.

Integration Requirements: Line segments must be coincident with the NHD Flowline dataset.

Coincidence may be maintained using the HEM Tools.

**FISH\_NON\_NATIVE\_ARC**

Description: Instance of Species Occurrences with the Resources group.

Geometry: Lines.

Topology: No topology enforced. Overlapping features are allowed.

Integration Requirements: Line segments must be coincident with the NHD Flowline dataset.

Coincidence may be maintained using the HEM Tools.

**FISH\_ANADROMOUS\_POLY**

Description: Instance of Species Occurrences with the Resources group.

Geometry: Polygons. Simple polygons, not multipart, are used.

Topology: No topology enforced. Overlapping features are allowed.

Integration Requirements: Line segments must be coincident with the NHD Waterbody dataset.

Coincidence may be maintained using the HEM Tools.

**FISH\_RESIDENT\_POLY**

Description: Instance of Species Occurrences with the Resources group.

Geometry: Polygons. Simple polygons, not multipart, are used.

Topology: No topology enforced. Overlapping features are allowed.

Integration Requirements: Line segments must be coincident with the NHD Waterbody dataset.

Coincidence may be maintained using the HEM Tools.

**FISH\_NON\_NATIVE\_POLY**

Description: Instance of Species Occurrences with the Resources group.

Geometry: Polygons. Simple polygons, not multipart, are used.

Topology: No topology enforced. Overlapping features are allowed.

Integration Requirements: Line segments must be coincident with the NHD Waterbody dataset.

Coincidence may be maintained using the HEM Tools.

**7. ATTRIBUTE CHARACTERISTICS AND DEFINITION**

(In alphabetical order)

**7.1 COMMENTS**

Geodatabase Name	COMMENTS
BLM Structured Name	Fish_Distribution_Comments_Text
Alias Name	None.
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes



Definition	Description and comments about the feature.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: “fish use ends at series of bedrock falls”, “verified by odf 5/1/2000”
Data Type	String (1000)

## 7.2 EVENTDATE

Geodatabase Name	EVENTDATE
BLM Structured Name	National_Hydrography_Dataset_Event_Date
Alias Name	None.
Inheritance	Inherited from entity NHD
Feature Class Use/Entity Table	All feature classes
Definition	The date the event record was created or last modified by the HEM tools. Inherited from the NHD data model.
Required/Optional	Required
Domain (Valid Values)	No domain
Data Type	Date

## 7.3 EVENTOFFSET

Geodatabase Name	EVENTOFFSET
BLM Structured Name	National_Hydrography_Dataset_Event_Offset_Number
Alias Name	None.
Inheritance	Inherited from entity NHD
Feature Class Use/Entity Table	FISH_ANADROMOUS_ARC, FISH_RESIDENT_ARC, FISH_NON_NATIVE_ARC
Definition	The distance from the stream network to be used to display the event. Negative offsets display the event to the left of the network and positive offsets display the event to the right of the line. Offsets are useful for displaying overlapping events. Inherited from the NHD data model.  The default value for this field is 0 (zero).
Required/Optional	Yes
Domain (Valid Values)	No domain. Examples: 0, 1, -2
Data Type	Double

**7.4 EXT\_INVESTIGATOR**

Geodatabase Name	EXT_INVESTIGATOR
BLM Structured Name	Fish_Distribution_External_Investigator_Text
Alias Name	None.
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes
Definition	Name of the surveyor/observer (if available). The field is only populated if data was acquired from a non-BLM source.  This field should not be edited.
Required/Optional	Optional
Domain (Valid Values)	No domain
Data Type	String (30)

**7.5 EXT\_OBS\_DT**

Geodatabase Name	EXT_OBS_DT
BLM Structured Name	Fish_Distribution_External_Observation_Date
Alias Name	None.
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes
Definition	Date of field verification or other habitat/species determination. The field is only populated if data was acquired from a non-BLM source.  This field should not be edited.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 5/12/2004, 10/1/1997
Data Type	Date

**7.6 EXT\_PRESENCE\_CD**

Geodatabase Name	EXT_PRESENCE_CD
BLM Structured Name	Fish_Distribution_External_Presence_Code
Alias Name	None.
Inheritance	Not Inherited

Feature Class Use/Entity Table	All feature classes
Definition	Records the basis for making the determination of fish habitat distribution. The field is only populated if data was acquired from a non-BLM source.  This field should not be edited.
Required/Optional	Optional
Domain (Valid Values)	<a href="#">dom_Fish_ExtPresence</a>
Data Type	String (50)

## 7.7 EXT\_SOURCE

Geodatabase Name	EXT_SOURCE
BLM Structured Name	Fish_Distribution_External_Source_Text
Alias Name	None.
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes
Definition	Name of the agency, entity, or project (outside the BLM) from which the data was acquired. The field is only populated if data was acquired from a non-BLM source.  This field should not be edited.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: "ODF", "PSMFC", "ODFW,BLM,USFS"
Data Type	String (50)

## 7.8 FISH\_METHOD

Geodatabase Name	FISH_METHOD
BLM Structured Name	Fish_Distribution_Method_Code
Alias Name	None
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes.
Definition	Method used to collect the fish species.
Required/Optional	Required
Domain (Valid Values)	<a href="#">dom_Fish_Method</a>
Data Type	String (30)

**7.9 FMEASURE**

Geodatabase Name	FMEASURE
BLM Structured Name	National_Hydrography_Dataset_From_Measure_Number
Alias Name	None.
Inheritance	Inherited from entity NHD
Feature Class Use/Entity Table	FISH_ANADROMOUS_ARC, FISH_RESIDENT_ARC, FISH_NON_NATIVE_ARC
Definition	Measure along the NHD Flowline, in percent from downstream end, where the Fish Distribution feature begins (from). Values are rounded to five decimal places. Inherited from the NHD data model.
Required/Optional	Required. Auto-populated by the HEM Tools.
Domain (Valid Values)	No Domain. Examples: "0", "5.75415"
Data Type	Double

**7.10 INVESTIGATOR**

Geodatabase Name	INVESTIGATOR
BLM Structured Name	Investigator_Name
Alias Name	None.
Inheritance	Inherited from Oregon Data Framework
Feature Class Use/Entity Table	All feature classes
Definition	Name (mixed case, first and last) of the subject matter specialist most knowledgeable about the site. The contact person.
Required/Optional	Required
Domain (Valid Values)	No domain. Examples: Mary Smith, John Doe
Data Type	String (30)

**7.11 OBS\_DT**

Geodatabase Name	OBS_DT
BLM Structured Name	Fish_Distribution_Observation_Date
Alias Name	None.
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes
Definition	The date the information was collected. For values that can only be

	described to the month, enter MM/01/YYYY. For values that can only be described to the year, enter 01/01/YYYY.
Required/Optional	Required
Domain (Valid Values)	No Domain. Example: 5/1/2017
Data Type	Date

### 7.12 PERMANENT\_IDENTIFIER

Geodatabase Name	PERMANENT_IDENTIFIER
BLM Structured Name	National_Hydrography_Permanent_Global_Unique_Identifier
Alias Name	None.
Inheritance	Inherited from entity NHD
Feature Class Use/Entity Table	All feature classes
Definition	40-char GUID value that uniquely identifies the occurrence of each feature. Inherited from the NHD data model.
Required/Optional	Required. Auto-populated by the HEM Tools.
Domain (Valid Values)	No domain. Examples: “{A317BEC7-41D0-4326-B252-7910A3B12DBE}”, “{E74CA99D-840C-420A-81D3-B8890E052272}”
Data Type	String (38)

### 7.13 PRESENCE\_CD

Geodatabase Name	PRESENCE_CD
BLM Structured Name	Fish_Distribution_Presence_Code
Alias Name	None.
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes
Definition	Indicates if the fish species is present or absent at the feature.
Required/Optional	Required
Domain (Valid Values)	<a href="#">dom Fish Presence</a>
Data Type	String (3)

**7.14 REACHCODE**

Geodatabase Name	REACHCODE
BLM Structured Name	National_Hydrography_Dataset_Reach_Code
Alias Name	None.
Inheritance	Inherited from entity NHD
Feature Class Use/Entity Table	All feature classes
Definition	The ReachCode value for the NHD feature (Flowline or Waterbody) that the fish distribution record references. Inherited from the NHD data model.
Required/Optional	Required. Auto-populated by the HEM tools.
Domain (Valid Values)	No domain. Examples: “17100311007609”, “17100306002623”
Data Type	String (14)

**7.15 REACHRESOLUTION**

Geodatabase Name	REACHRESOLUTION
BLM Structured Name	National_Hydrography_Dataset_Reach_Resolution_Code
Alias Name	None.
Inheritance	Inherited from NHD
Feature Class Use/Entity Table	All feature classes
Definition	Code to indicate the resolution of the source NHD feature.
Required/Optional	Required. Auto-populated by the HEM Tools.
Domain (Valid Values)	<a href="#">dom_NHD_Resolution</a>
Data Type	Long Integer

**7.16 REACHSMDATE**

Geodatabase Name	REACHSMDATE
BLM Structured Name	National_Hydrography_Dataset_Reach_Spatial_Modification_Date
Alias Name	None.
Inheritance	Inherited from NHD

Feature Class Use/Entity Table	All feature classes
Definition	The version date tracks the last time that the NHD feature represented by ReachCode experienced a change in geometry. When the ReachSMDate in the Fish Distribution record and the ReachSMDate in the NHDReachCode_ComID table disagree, the position of the event along the network may need to be updated. Inherited from the NHD data model.
Required/Optional	Required. Auto-populated by the HEM Tools.
Domain (Valid Values)	No domain. Examples: "19-JAN-06 15:49", "27-DEC-07 06:01"
Data Type	Date

### 7.17 SPECIES\_CD

Geodatabase Name	SPECIES_CD
BLM Structured Name	Fish_Distribution_Species_Code
Alias Name	None.
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes
Definition	The code for the fish species associated with the distribution record.
Required/Optional	Required
Domain (Valid Values)	<a href="#">dom Fish Anadromous</a> , <a href="#">dom Fish NonNative</a> , <a href="#">dom Fish Resident</a>
Data Type	String (10)

### 7.18 TMEASURE

Geodatabase Name	TMEASURE
BLM Structured Name	National_Hydrography_Dataset_To_Measure_Number
Alias Name	None.
Inheritance	Inherited from NHD
Feature Class Use/Entity Table	FISH_ANADROMOUS_ARC, FISH_RESIDENT_ARC, FISH_NON_NATIVE_ARC
Definition	The Measure along the NHD Flowline, in percent from downstream end, where the Fish Distribution feature ends (to). Values are rounded to five decimal places. Inherited from the NHD data model.
Required/Optional	Required. Auto-populated by the HEM Tools.

Domain (Valid Values)	No domain. Examples: “100”, “29.73511”
Data Type	Double

## 7.19 VERSION\_NAME

Geodatabase Name	VERSION_NAME
BLM Structured Name	Geodatabase_Version_Text
Alias Name	None.
Inheritance	Inherited from Entity ODF
Feature Class Use/Entity Table	All feature classes
Definition	<p>Name of the corporate geodatabase version previously used to edit the record.</p> <p>InitialLoad = feature has not been edited in ArcSDE.</p> <p>Format: username.XXX-mmddy-hhmmss = version name of last edit (hours might be a single digit; leading zeros are trimmed for hours only). XXX=theme abbreviation.</p> <p>Example: sfrazier.FIRE_POLY-121210-111034</p> <p>Only appears in the transactional (edit) version. Public version (which is also the version used internally for mapping or analysis) does not contain this attribute.</p>
Required/Optional	Required (automatically generated)
Domain (Valid Values)	No domain
Data Type	String (50)

## 8. LAYER FILES (PUBLICATION VIEWS)

### 8.1 GENERAL

Master corporate feature classes/datasets maintained in the edit database are “published” to the user database in several ways:

- Copied completely with no changes (replicated).
- Copied with no changes except to omit one or more feature classes from a feature dataset.
- Minor changes made (e.g., clip, dissolve, union with ownership) in order to make the data easier to use. Feature classes that have been changed are indicated by “PUB” in their name. They are created through scripts that can be automatically executed and are easily rebuilt from



the master (ORSOEDIT) data whenever necessary.

Layer files are not new data requiring storage and maintenance, but point to existing data. They have appropriate selection and symbolization for correct use and display of the data. They provide the guidance for data published on the web. Layer files are created by simple, documented processes, and can be deleted and recreated at any time.

## 8.2 SPECIFIC TO THIS DATASET

The datasets described in this data standard contribute to the Hydro Publication datasets. The hydro publication Flowline feature class contains a fishbearing attribute that is derived from the data in the resident and anadromous linear feature classes. The hydro publication Waterbody feature class contains a fishbearing attribute that is derived from the data in all three polygon feature classes described in this data standard.

The purpose of the publication dataset will be to provide a continuous, non-overlapping feature class that presents to the users if a stream has fish presence of any species. The Fishbearing feature class will be generated by overlaying these species-specific event tables, where presence values are 'PNV' or 'PV', and rendering the resultant geometry of the line or polygon segments. Any overlapping or duplicate geometry will be cleaned up using a procedure that checks and corrects these issues.

Layer files will be created for internal use categorizing the Fish Distribution feature classes by Species (SPECIES\_CD) and Presence (PRESENCE\_CD). Additionally, streaming data services may be created from each feature class and used internally and externally for access to the data.

Fields that reference staff names will be removed from data before publishing to public-facing websites. This includes the following fields: INVESTIGATOR, EXT\_INVESTIGATOR, VERSION\_NAME.

## 9. EDITING PROCEDURES

### 9.1 THEME SPECIFIC GUIDANCE

There is much in the data standard that addresses editing and provides guidance, especially in the Data Management Protocols (Section 3).

Fish Distribution arcs and polygons may (preferred) be edited with the HEM Tools for ArcGIS.

For detailed instructions on editing Fish Distribution data, see the user guide at:

[http://teamspace/or/sites/arims/ARIMS\\_Redesign/Aquatic Fauna/ARIMS\\_SpeciesSpecificFishDistribution\\_UserGuide.docx](http://teamspace/or/sites/arims/ARIMS_Redesign/Aquatic_Fauna/ARIMS_SpeciesSpecificFishDistribution_UserGuide.docx)

For more information about the HEM tools, see the USGS website at:

<https://nhd.usgs.gov/tools.html#hem>.

# 10. OREGON/WASHINGTON DATA FRAMEWORK OVERVIEW

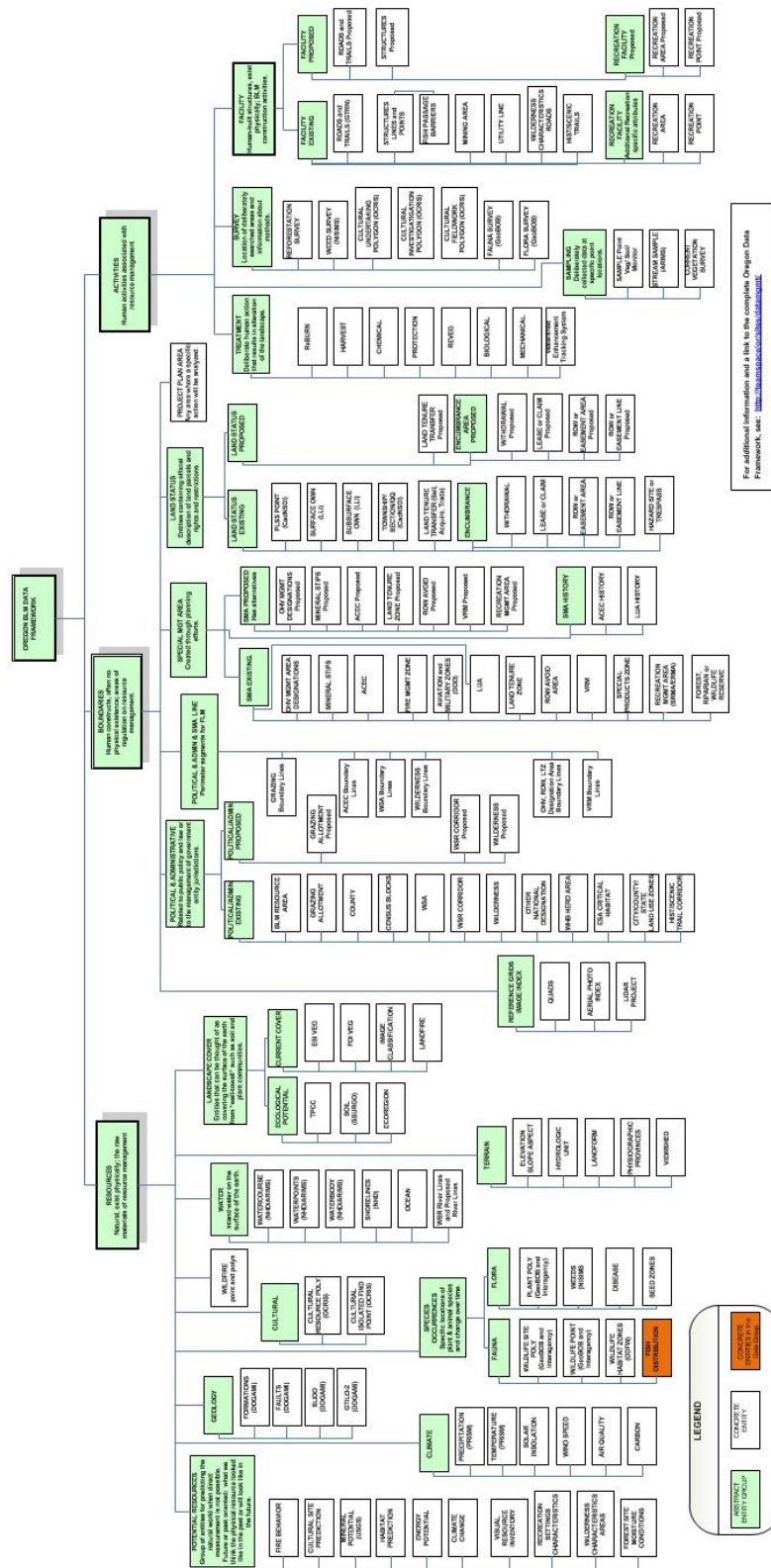


Figure 2. Oregon Data Framework Overview

## 11. ABBREVIATIONS AND ACRONYMS USED

(Does not include abbreviations/acronyms used as codes for particular data attributes or domain values)

Abbreviations	Descriptions
ARC	GIS line feature
BLM	Bureau of Land Management, U.S. Department of the Interior
CADNSDI	Cadastral National Spatial Data Infrastructure
DEM	Digital Elevation Model
DLG	Digital Line Graphs
FOIA	Freedom of Information Act
GIS	Geographic Information System
GPS	Global Positioning System
GTRN	Ground Transportation GIS dataset
HEM	Hydrography Event Management Tools
IDP	Interdisciplinary
NAD	North American Datum
NARA	National Archives and Records Administration
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
POLY	GIS polygon feature
PUB	Publication
RMP	Resource Management Plan
ODF	Oregon Data Framework
OR/WA	Oregon/Washington BLM Administrative State
USFS	United States Forest Service, U.S. Department of Agriculture
USGS	United States Geological Survey, U.S. Department of the Interior
SDE	Spatial Database Engine
WEB	Worldwide Web (internet)

**Table 2. Abbreviations/Acronyms Used**

## APPENDIX: DOMAINS (VALID VALUES)

These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Some of the domains used in this data standard are also available at the following web site:

<https://www.blm.gov/about/data/oregon-data-management>

For domains not listed at that site contact the [State Data Administrator](#) for current lists. The State Data Administrator's contact information can be found at:

<https://www.blm.gov/about/data/oregon-data-management>

### A.1 dom\_Fish\_Anadromous

**Fish Anadromous Species Code.** Fish species codes for anadromous fish. The code is an alpha short code and the display value is the Scientific Name and Common Name.

ACME	Acipenser medirostris / Green Sturgeon
LATR	Lampetra tridentata / Pacific Lamprey
ONGO	Oncorhynchus gorboscha / Pink Salmon
ONKE	Oncorhynchus keta / Chum Salmon
ONKI	Oncorhynchus kisutch / Coho Salmon
ONMYL	Oncorhynchus mykiss / Summer Steelhead
ONMYK	Oncorhynchus mykiss / Winter Steelhead
ONNE	Oncorhynchus nerka / Sockeye Salmon
ONTSM	Oncorhynchus tshawytscha / Spring Chinook Salmon
ONTSN	Oncorhynchus tshawytscha / Fall Chinook Salmon
ONTSO	Oncorhynchus tshawytscha / Summer Chinook Salmon
THPA	Thaleichthys pacificus / Eulachon

### A.2 dom\_Fish\_ExtPresence

**Fish External Presence Code.** Indicates the fish presence of the source data for data acquired from other agencies.

BLM_TRACE	BLM_TRACE -
CCTIC_pres_or_dwnstrm	CCTIC_pres_or_dwnstrm -
ConcurProfOpinion	ConcurProfOpinion - Concurrence of professional opinion (CPO). Models other than those listed in the HabitatEval category would be subject to a CPO.
DocObsFish	DocObsFish - Documented observation of fish by a generally accepted standardized survey method. A record of the fish observation is maintained in an existing data system (e.g. database, spreadsheet, hardcopy data collection forms).
DocObsHabitat	DocObsHabitat - Documented observation of habitat by a generally accepted standardized survey method. A record of the habitat observation is maintained in an existing data system (e.g. database, spreadsheet, hardcopy data collection forms).
DownstreamDocObsFish	Downstream of documented observation for anadromous species.

HabitatEval	HabitatEval - Habitat evaluation based on modeling. Limited to the following models: Intrinsic Potential <sup>5</sup> and Habitat Limiting Factors <sup>6</sup> .
IndivProfOpinion	IndivProfOpinion - Individual professional opinion.
UndocObsFish	UndocObsFish - Undocumented observation of fish, which may include anecdotal observations.
unk_mod_assu_or_dwnstrm	unk_mod_assu_or_dwnstrm
unk_mod_assu_or_dwnstrm/BLM_TRACE	unk_mod_assu_or_dwnstrm/BLM_TRACE
ver_dphys_or_dwnstrm	ver_dphys_or_dwnstrm

### A.3 dom\_Fish\_Method

**Fish Method Code.** Indicates how the data was collected.

Field Surveyed	The systematic observation, identification and collection of quantitative information describing fish or fish habitat, following a standardized methodology (Electrofishing, Spawning Surveys, eDNA, Snorkel, etc.).
Professional Opinion/Modeled	Professional Opinion: An opinion formulated by an individual biologist from a natural resource agency or tribe. Generally, this is Presence Not Verified (PNV). Modeled: A schematic description of a system, theory, or phenomenon that accounts for its known or inferred properties and may be used for further study of its characteristics (ex. LiDAR, Digital Elevation Models, Species Occupancy Model, etc.). Generally, this is Presence Not Verified (PNV).
Other	Alternate methods used that are not captured in the other methods. To be described in Comments field (ex. HydConversion). Generally, this is Presence Not Verified (PNV).

### A.4 dom\_Fish\_NonNative

**Fish Non-Native Species Code.** Fish species codes for non-native species of fish. The code is an alpha short code and the display value is the Scientific Name and Common Name.

ALSA	Alosa sapidissima / American Shad
ARIN	Ameiurus interruptus / Sacramento Perch
AMME	Ameiurus melas / Black Bullhead
AMNA	Ameiurus natalis / Yellow Bullhead
AMNE	Ameiurus nebulosus / Brown Bullhead
CYCA	Cyprinus carpio / Common Carp
GAAF	Gambusia affinis / Mosquitofish
ICPU	Ictalurus punctatus / Channel Catfish
LECY	Lepomis cyanellus / Green Sunfish
LEGI	Lepomis gibbosus / Pumpkinseed
LEMA	Lepomis macrochirus / Bluegill
LEMI	Lepomis microlophus / Redear Sunfish
MIDO	Micropterus dolomieu / Smallmouth Bass
MISA	Micropterus salmoides / Largemouth Bass
NOCR	Notemigonus crysoleucas / Golden Shiner
PEFL	Perca flavescens / Yellow Perch

PIPR	Pimephales promelas / Fathead Minnow
POAN	Pomoxis annularis / White Crappie
PONI	Pomoxis nigromaculatus / Black Crappie
SATR	Salmo trutta / Brown Trout
SAFO	Salvelinus fontinalis / Brook Trout
STVI	Stizostedion vitreum vitreum / Walleye

### A.5 dom\_Fish\_Presence

**Fish Presence Code.** The code to indicate if the species is present at the geographic extent of the feature.

PV	PV – Presence Verified
PNV	PNV – Presence Suspected, Not Verified
AV	AV – Absence Verified

### A.6 dom\_Fish\_Resident

**Fish Resident Species Code.** Fish species codes for resident species of fish. The code is an alpha short code and the display value is the Scientific Name and Common Name.

ACTR	Acipenser transmontanus / White Sturgeon
ACAL	Acrocheilus alutaceus / Chiselmouth
CACA	Catostomus catostomus / Longnose Sucker
CACO	Catostomus columbianus / Bridgelip Sucker
CAMA	Catostomus macrocheilus / Largescale Sucker
CAOCLAA	Catostomus occidentalis lacusanserinus / Goose Lake Sucker
CAPL	Catostomus platyrhynchus / Mountain Sucker
CARI	Catostomus rimitulus / Klamath Smallscale Sucker
CARISSPA	Catostomus rimitulus ssp / Jenny Creek Sucker
CASN	Catostomus snyderi / Klamath Largescale Sucker
CATA	Catostomus tahoensis / Tahoe Sucker
CAWA	Catostomus warnerensis / Warner Sucker
CHBR	Chasmistes brevirostris / Shortnose Sucker
COAL	Cottus aleuticus / Coast Range Sculpin
COAS	Cottus asper / Prickly Sculpin
COBAA	Cottus bairdii / Malheur Mottled Sculpin
COBA	Cottus bairdii / Mottled Sculpin
COCO2	Cottus confusus / Shorthead Sculpin
COGU	Cottus gulosus / Riffle Sculpin
COPE	Cottus perplexus / Reticulate Sculpin
COPI	Cottus pitensis / Pit Sculpin
COPR	Cottus princeps / Klamath Lake Sculpin
CORH	Cottus rhotheus / Torrent Sculpin
COSPP	Cottus spp.
COTE	Cottus tenuis / Slender Sculpin
DELU	Deltistes luxatus / Lost River Sucker
GAAC	Gasterosteus aculeatus / Threespine Stickleback
GIAL	Gila alvordensis / Alvord Chub
GIBI	Gila bicolor / Tui Chub

GIBO	<i>Gila boraxobius</i> / Borax Lake Chub
GICO	<i>Gila coerulea</i> / Blue Chub
LALE	<i>Lampetra lethophaga</i> / Pit-Klamath Brook Lamprey
LAMI	<i>Lampetra minima</i> / Miller Lake Lamprey
LARI	<i>Lampetra richardsoni</i> / Western Brook Lamprey (Pacific Brook Lamprey)
LASI	<i>Lampetra similis</i> / Klamath Lamprey
LATRA	<i>Lampetra tridentata</i> / Goose Lake Lamprey
LATRB	<i>Lampetra tridentata</i> / Upper Klamath Basin Pacific Lamprey
LOLO	<i>Lota lota</i> / Burbot
MYCA	<i>Mylocheilus caurinus</i> / Peamouth
ONCLCL	<i>Oncorhynchus clarkii clarkii</i> / Coastal Cutthroat Trout
ONCLHE	<i>Oncorhynchus clarkii henshawi</i> / Lahontan Cutthroat Trout
ONCLLE	<i>Oncorhynchus clarkii lewisi</i> / Westslope Cutthroat Trout
ONMYH	<i>Oncorhynchus mykiss</i> / Inland Columbia Basin Redband Trout
ONMYI	<i>Oncorhynchus mykiss</i> / Oregon Basin Redband Trout
ONMYJ	<i>Oncorhynchus mykiss</i> / Rainbow Trout
ONNEC	<i>Oncorhynchus nerka</i> / Kokanee Salmon
ONSSPC	<i>Oncorhynchus clarkii</i> / Cutthroat Trout hybrid
ORCR	<i>Oregonichthys crameri</i> / Oregon Chub
ORKA	<i>Oregonichthys kalawatseti</i> / Umpqua Chub
PRCO	<i>Prosopium coulterii</i> / Pygmy Whitefish
PRWI	<i>Prosopium williamsoni</i> / Mountain Whitefish
PTOR	<i>Ptychocheilus oregonensis</i> / Northern Pikeminnow
PTUM	<i>Ptychocheilus umpquae</i> / Umpqua Pikeminnow
RHCA	<i>Rhinichthys cataractae</i> / Longnose Dace
RHCASSP	<i>Rhinichthys cataractae ssp</i> / Millacoma Dace
RHEV	<i>Rhinichthys evermanni</i> / Umpqua Dace
RHOSA	<i>Rhinichthys osculus</i> / Foscett Speckled Dace
RHOS	<i>Rhinichthys osculus</i> / Speckled Dace
RHOSKLB	<i>Rhinichthys osculus klamathensis</i> / Speckled Dace (Klamath Basin)
RIBA	<i>Richardsonius balteatus</i> / Redside Shiner
RIEG	<i>Richardsonius egregius</i> / Lahontan Redside Shiner
SACO	<i>Salvelinus confluentus</i> / Bull Trout

### A.7 dom\_NHD\_Resolution

**NHD Resolution Code.** Indicates the resolution of the NHD data. This domain is inherited from the National Hydrography Dataset data model.

1	Local
2	High
3	Medium